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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/739,882	12/18/2003	Zhendong Jin	875.080US1	9688

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EXAMINER	
COVINGTON, RAYMOND K	
ART UNIT	PAPER NUMBER
1625	

DATE MAILED: 03/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/739,882	JIN ET AL.	
	Examiner	Art Unit	
	Raymond Covington	1625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 June 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☒ Claim(s) *7 and 8* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *6/24/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claim Rejections - 35 USC § 112

Claims 7-8 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim may not depend from another multiple dependent claim. Here, claim 7 is a multiple dependent claim, which depends from another multiple dependent claim, claim 4. Claim 8 is rejected as it depends from a rejected base claim, claim 4. See MPEP § 608.01(n).

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> **The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.**

Claims 11 are rejected under 35 USC 112, second paragraph) as being indefinite as to the term "R^2 is the remainder of organic group R". The phrase is unclear. The claim includes all known organic groups and may also be subject to a 35 USC 112 first paragraph rejection on enablement and scope.

Claim 18 is rejected under 35 .U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim is self conflicting because the claim is drawn to pharmaceutical compositions without a dosage limitation. Please note that a pharmaceutical composition by definition cannot be either ineffective or toxic. Therefore a pharmaceutical composition without any dosage is self conflicting. It is recommended that the term "therapeutically effective amount" be incorporated into the claim.

Claim 1 is rejected under 35 .U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 does not positively recite what they regard as their invention with respect to the alpha designations R, X, Y and Z which are defined as organic substituents that do not interfere with the condensation.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> **The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.**

Claim 17 provides for the "use of" a compound. But, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite

where it merely recites a use without any active, positive steps delimiting how this use is actually practiced. The claims are a hybrid of method and compositions.

Claim 17 is rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd.* v. *Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claims 17-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement, as well as under 35 U.S.C. 1 12, first paragraph, because the specification, while being enabling for preparing compounds of formula 1 does not reasonably provide enablement for a dyestuff, antibacterial or herbicidal use.

The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to operate the invention commensurate in scope with these claims. A survey of the specification noted that the specification did not explicitly describe any dyestuff, antibacterial or herbicidal composition or use

Claim 17 is rejected under 35 U.S.C. 112, first paragraph, because specification because it does not reasonably provide enablement for the treatment of HIV or AIDS. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims.

In *In re Wands*, 8 USPQ2d 1400 (1988), factors to be considered in determining whether a disclosure meets the enablement requirement of 35 U.S.C. 112, first paragraph, have been described. They are:

1. **the nature of the invention,**
2. **the state of the prior art,**
3. **the predictability or lack thereof in the art,**
4. **the amount of direction or guidance present,**
5. **the presence or absence of working examples,**
6. **the breadth of the claims,**
7. **the quantity of experimentation needed, and**
8. **the level of the skill in the art.**

The nature of the invention: The nature of the invention is a method for the treatment of HIV or AIDS.

The state of the prior art: The state of the prior art is that it involves screening in vitro and in vivo to determine which compounds exhibit the desired pharmacological activities (i.e. what compounds can treat which specific disease). There is no absolute predictability and no established correlation between in vitro activity and the treatment of viral conditions such

as HIV as the in vitro data is not a reliable predictor of success even in view of the seemingly high level of skill in the art. The existence of these obstacles establishes that the contemporary knowledge in the art would prevent one of ordinary skill in the art from accepting any therapeutic regimen on its face.

The predictability in the art: It is noted that the pharmaceutical art is unpredictable, requiring each embodiment to be individually assessed for physiological activity. In re Fisher, 427 F. 2d 833, 166 USPQ 18 (CCPA 1970) indicates that the more unpredictable an area is, the more specific enablement is necessary in order to satisfy the statute.

It is well known in the art that treatment of one mammal with one compound to treat one viral infection does not predict the treatment of another different mammal with a different compound to treat a different viral infection. By using the term treatment of humans, and all mammals, in the claim language, applicants are necessarily extending the treatment and detection to (or compositions) which have not been demonstrated to be effective.

In the instant case, the instantly claimed invention is highly unpredictable since one skilled in the art would not the nexus between the

between in vitro activity and the treatment of viral infections, particularly in vivo, in a particular mammal or human.

Hence, in the absence of a showing of a nexus between any and all known viral infections and the claimed compounds, one of ordinary skill in the art is unable to fully predict possible results from the administration of the claimed compounds.

The presence or absence of working examples: In addition, there is no proof that the claimed compounds or compositions have ever been administered to a human or to an animal model other than mice. The obstacles to therapeutic approaches and detection with regard to viral infections and detection are well documented in the literature. See, for example, Huff {J. Med. Chem. 34(8) 1991, p. 2305-2314} on page 2314. These obstacles include and are not limited to: 1) the extensive genomic diversity, 2) the fact that the modes of viral transmission include virus-infected mononuclear cells, which pass the infecting virus to other cells in a convert form, as well as via free virus transmission, 3) the complexity and variation of the elaboration of the disease.

There are insufficient exemplifications to support the treatment of all known viral infections encompassed by claim 17 where only mice and in vitro data are exemplified.

The existence of these obstacles establishes that the contemporary knowledge in the art would prevent one of ordinary skill in the art from accepting any therapeutic regimen on its face. In order to provide proof of utility with regard to drugs and their uses, either clinical in vivo or in vitro data correlative to in vivo applicability or a combination of these can be used. However, the data must be such as to convince one of ordinary skill in the art that the proposed utility is sufficiently established as set forth in full, clear and exact terms in the scope of the disclosure. When the utility is directed to humans, the data must generally be clinical, however, adequate animal data would be acceptable in those instances wherein one of ordinary skill in the art would accept correlation to human utility. Thus, in order to rely on animal data, there must exist an art recognized animal model for testing purposes. In re Hartop, 311 F.2d 249, 135 USPQ 419 (CCPA 1962).

The amount of direction or guidance present: There is no proof that the claimed compounds or compositions have ever been administered to a human or to an animal model or than mice.

The breadth of the claims: The claims are drawn to the treatment of any and all for HIV or AIDS.

The quantity of experimentation needed: The quantity of experimentation needed is undue. One skilled in the art would need to determine which HIV infections out of all such known infections would be benefited by the compounds of claim 1 and then would further need to determine which of the claimed compounds would provide the treatment. The level of the skill in the art: The level of skill in the art is high. However, due to the unpredictability in the pharmaceutical art, it is noted that each embodiment of the invention is required to be individually assessed for physiological activity by in vitro and in vivo screening to determine which compounds exhibit the desired pharmacological activity and which viral infections would benefit from this activity.

Thus, the specification fails to provide sufficient support of the broad method recited in applicants' claims. As a result necessitating one of ordinary skill to perform an exhaustive search for which diseases can be treated by which compound in order to practice the claimed invention.

> **Genentech Inc. v. Novo Nordisk A/S (CA FC) 42 USPQ2d 1001, states that "a patent is not a hunting license. It is not a reward for search, but compensation for its successful conclusion" and "[p]atent protection is granted in return for an enabling**

> **disclosure of an invention, not for vague intimations of general ideas that may or may not be workable".**

Therefore, in view of the Wands factors and In re Fisher (CCPA 1970) discussed above, to practice the claimed invention herein, one of ordinary skill in the art would have to engage in undue experimentation to test which diseases can be treated by the compounds of the instant claims, with no assurance of success. It is recommended that the scope of the claims be limited.

Claim Rejections - 35 USC 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> **A person shall be entitled to a patent unless –**
>
> **(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.**

Claims 1-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Kashiwada et al Tetra. Vol. 57 pp 1559-1563 (2001). See, for example page 1560 right column last paragraph and Scheme 1 and page 1562 first paragraph.

Claim Rejections - 35 USC 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kashiwada et al Tetra. Vol. 57 pp 1559-1563 (2001).

Determination of the scope and content of the prior art (MPEP 2141.01)

Kashiwada et al teach preparation of compounds of applicants' formula (1) and their use in the same type manner as recited in the claims. See, for example page 1560 right column last paragraph and Scheme 1 and page 1562 first paragraph.

Ascertainment of the difference between the prior art and the claims (MPEP 2141.02)

Patentees differ from the claimed invention in that they do not explicitly teach the use of microwave irradiation.

Finding of prima facie obviousness--rational and motivation (MPEP 2142-2413)

However, patentees do teach irradiating with a low-pressure mercury lamp. Such irradiations inherently contain microwave irradiation.

To apply these inherent teachings by the application of the Kashiwada et al reference in the production of known would have been obvious to one of ordinary skill in the art as the result, production of the claimed product, would not have been unexpected.

It is also noted with respect to claim 19 that the claimed compounds have color characteristics and would inherently have utility as a dyestuff.

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond Covington whose telephone number is (571) 272-0681. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, C. Tsang can be reached on (571) 272-0562. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Raymond Covington
Examiner
Art Unit 1625

RKC

2/22/05.